Contents

Introduction *xv*

Chapter 1 The 3ds Max Interface 1

The Workspace 1
User Interface Elements 1
Viewports 4
ViewCube 5
Mouse Buttons 6
Quad Menus 6
The Caddy Interface 8
Display of Objects in a Viewport 8
Viewport Navigation 10
Transforming Objects Using Gizmos 11
Move 11
Rotate 12
Scale 12
Graphite Modeling Tools Ribbon 13
Command Panel 13
Object Parameters and Values 14
Modifier Stack 14
Objects and Subobjects 15
Time Slider and Track Bar 15
File Management 16
Setting a Project 16
Version Up! 17
The Essentials and Beyond 18

Chapter 2 Your First 3ds Max Project 19

Starting to Model a Chest of Drawers 19
Ready, Set, Reference! 20
Ready, Set, Model! 21
Modeling the Top 21
I Can See Your Drawers 28
Modeling the Bottom 33

Creating the Knobs 42
Editing the Profile 46
Copying the Knob 47
The Essentials and Beyond 49

CHAPTER 3 Modeling in 3ds Max: Part I 51

Building the Red Rocket 51
Creating Planes and Adding Materials 52
Creating the Body 55
Smoothing the Body 61
Adding Detail to the Rocket Body 62
Creating the Wheel Well 64
Creating the Control Panel 69
Creating the Back Wheel Axle Assembly 76
Further Body Work 79
Hold On to Your Seat 83
The Essentials and Beyond 85

CHAPTER 4 Modeling in 3ds Max: Part II 87

Creating the Thruster 87
Using Lathe for the Thruster Shape 88
Creating the 3D Object for the Thruster Detail 91
Making the Wheels 96
Creating the First Wheel 97
Placing the Wheels 99
Getting a Handle on Things 100
Creating the Path 101
Creating the Shape 102
Editing the Loft Object 103
Adding Detail 105
The Essentials and Beyond 110

CHAPTER 5 Animating a Bouncing Ball 111

Animating the Ball 111
Copying Keyframes 113
Using the Track View–Curve Editor 113
Reading Animation Curves 116

Refining the Animation 118
Editing Animation Curves 118
Finessing the Animation 120
Squash and Stretch 120
Setting the Timing 121
Moving the Ball Forward 123
Adding a Roll 124
Using the XForm Modifier 125
Animating the XForm Modifier 126
The Essentials and Beyond 128

CHAPTER 6 Animating a Thrown Knife 129

Anticipation and Momentum in Knife Throwing 129
Blocking Out the Animation 129
Trajectories 132
Adding Rotation 133
Adding Anticipation 135
Follow-Through 136
Transferring Momentum to the Target 137
Parent and Child Objects 137
The Essentials and Beyond 139

CHAPTER 7 Character Poly Modeling: Part I 141

Setting Up the Scene 141
Creating Planes and Adding Materials 142
Adding the Materials 143
Creating the Soldier 144
Forming the Torso 144
Creating the Arms 154
Creating the Legs 158
Fixing Up the Body 162
The Essentials and Beyond 164

CHAPTER 8 Character Poly Modeling: Part II 165

Completing the Main Body 165
Creating the Accessories 169
Putting On the Boots 176
Creating the Hands 180
The Essentials and Beyond 183

CHAPTER 9 Character Poly Modeling: Part III 185

Creating the Head 185
Merging In and Attaching the Head's Accessories 198
The Essentials and Beyond 200

CHAPTER 10 Introduction to Materials: Red Rocket 201

Materials 201
Compact Material Editor 202
Standard 203
Shaders 204
Mapping the Rocket 204
The Wheels 205
Creating a Multi/Sub-Object Material 205
Selecting Polygons 206
Loading the MSO Material into the Material Editor 207
Fine-tuning the Materials 208
Applying a Bump Map 211
Mapping the Fins: Introduction to Mapping Coordinates 211
The Base Material 212
Adding the Decal 213
Using a UVW Mapping Modifier 213
Mapping the Body 216
Creating the Material 218
Flipping the Decal 218
The Control Panel 221
Bring on the Nose, Bring on the Funk 222
The Essentials and Beyond 224

CHAPTER 11 Textures and UV Workflow: The Soldier 225

Mapping the Soldier 225
UV Unwrapping 226
Pelting the Left Arm UVs 233
Pelting the Right Arm UVs 235
Unwrapping and Using Pelt for the Head 236
Seaming the Rest of the Body 240
Unfolding the Rest of the Body 242
Applying the Color Map 248
Applying the Bump Map 249
Applying the Specular Map 253
The Essentials and Beyond 254

CHAPTER 12 Character Studio: Rigging 255

Character Studio Workflow 255
General Workflow 256
Associating a Biped with the Soldier Model 258
Creating and Modifying the Biped 258
Adjusting the Torso and Arms 263
Adjusting the Neck and Head 264
Applying the Physique Modifier 265
Controlling the View 268
Tweaking Physique 270
The Essentials and Beyond 273

CHAPTER 13 Character Studio: Animating 275

Character Animation 275
Animating the Soldier 275
Adding Freeform Animation 277
Modifying Animation in the Dope Sheet 282
The Essentials and Beyond 288

CHAPTER 14 Introduction to Lighting: Red Rocket 289

Three-Point Lighting 289
3ds Max Lights 290
Default Lights 290
Standard Lights 291
Target Spotlight 291
Target Direct Light 293
Free Spot or Free Direct Light 294
Omni Light 296
Lighting the Red Rocket 297
Selecting a Shadow Type 301
Shadow Maps 302
Raytraced Shadows 303
Atmospheres and Effects 303
Creating a Volumetric Light 304
Adding Shadows 305
Excluding an Object from a Light 306
Adding a Volumetric Effect 307
Volume Light Parameters 308
Light Lister 309
The Essentials and Beyond 310

CHAPTER 15 3ds Max Rendering 311

Rendering Setup . . . 311
Common Tab . . . 312
Choosing a Filename . . . 313
Rendered Frame Window . . . 314
Render Processing . . . 315
Assign Renderer . . . 315
Rendering the Bouncing Ball . . . 316
Cameras . . . 318
Creating a Camera . . . 318
Using Cameras . . . 319
Talk Is Cheap! . . . 319
Animating a Camera . . . 321
Clipping Planes . . . 321
Safe Frame . . . 322
Raytraced Reflections and Refractions . . . 323
Raytrace Material . . . 323
Tweaking the Render . . . 324
Raytrace Mapping . . . 325
Refractions Using the Raytrace Material . . . 326
Refractions Using Raytrace Mapping . . . 329
Rendering the Rocket . . . 331
Creating the Camera Move . . . 331
Adding Raytraced Reflections . . . 334
Turning On the Environment Effects . . . 337
Outputting the Render . . . 338
The Essentials and Beyond . . . 339

CHAPTER 16 mental ray and HDRI 341

mental ray Renderer . . . 341
Enabling the mental ray Renderer . . . 341
mental ray Sampling Quality . . . 342
Final Gather with mental ray . . . 344
Final Gather . . . 344
mental ray Materials . . . 348
3ds Max Photometric Lights in mental ray Renderings . . . 352
3ds Max Daylight System in mental ray Renderings . . . 358
HDRI . . . 363
The Essentials and Beyond . . . 369

Index *371*